# WIDE AREA FASTENER LAMINATES FOR FLOORING AND OTHER SURFACES

## BACKGROUND

This invention relates to touch fastener laminates, such as laminates having either hooks or loops, for securing flooring and other surfaces over wide areas.

The potential usefulness of hook and loop fastening systems to secure finish materials to wide area surfaces was recognized long ago. For example, German Registered Utility Model DE 42708, May 8, 1970, to Velcro France, suggested the fastening of flexible and rigid finishing materials to walls, floors and ceilings. Development of a tool to prevent premature engagement of the hook and loop fasteners when positioning a rigid member on a rigid surface was also known, see U.S. Patent 3,475,810, to Velcro, Inc. For attaching carpets, it was proposed in 1979 in British Patent 1,546,901 to secure long loops to a light fabric by deep needle punching and to attach that fabric to the surface of an underlayment of hair felt or resilient foam. Over the years, others have focused on the same potential for hook and loop fasteners for wide surfaces, see e.g. U.S. 3,817,015; 4,649,069; 4,744,189; 4,810,546; 4,822,658; 4,974,384; 5,042,221; 5,060,443; DE 4228597 (published application), and 5,191,692; 5,482,755; 6,298,624; 6,306,477 and 6,460,303.

Despite this, little commercial use has been made of hook and loop fastening to secure finish materials on wide surfaces, due to lack of hook and loop fasteners of appropriate function and cost.

## SUMMARY OF THE INVENTION

One aspect of the invention features a material for covering a surface of a home or building. The material is in the form of a flexible laminate having a fastening side comprising a sheet-form fastener component, and an opposite side formed by a sheet of paper laminated to the fastener component to increase the dimensional stability of the fastener component for covering and fastening over a wide area.

**WHAT IS CLAIMED IS:**

1. A material for covering a surface of a home or building, the material being in the form of a flexible laminate having a fastening side comprising a sheet-form fastener component, and an opposite side formed by a sheet of paper laminated to the fastener component to increase the dimensional stability of the fastener component for covering and fastening over a wide area.

2. The material of claim 1 wherein the sheet-form fastener component is in a laterally stretched condition as laminated to the paper.

3. The material of claim 1 or 2 wherein the paper has a lateral stiffness at least as great as that of 85 pound Kraft paper.

4. The material of any of the foregoing claims wherein the sheet-form fastener component comprises an array of male fastener elements suitable for engaging a field of loops.

5. The material of claim 4 wherein the male fastener elements are hook-shaped.

6. The material of claim 4 or 5 wherein the fastener elements have molded resin stems integral with a resin base layer extending across the fastener component and laminated to the paper.

7. The material of claim 6 wherein the base layer is laminated to the paper by resin of the base layer that encapsulates surface features of the paper.

8. The material of any of claims 1 to 3 wherein the sheet-form fastener component comprises a field of hook-engageable loops.

9. The material of claim 8 wherein the hook-engageable loops are defined by a non-woven web material.

10. The material of claim 9 wherein the web material comprises a non-woven web of entangled fibers, the fibers forming a sheet-form web body stabilized in a condition of at least about 50 percent areal stretch.

11. The material of claim 9 wherein the web material comprises a non-woven web of entangled fibers, the fibers forming a sheet-form web body stabilized in a condition of at least about 20 percent areal stretch, in which hook-engageable loops extend in clusters from tightened entanglements within the web body, the entanglements being joined together by straightened fibers, the product having a basis weight of less than about 4 ounces per square yard and at least some of the fibers having a fiber denier of less than 3.

12 The material of claim 9 wherein the web material includes a binder resin anchoring hook-engageable fibers or yarns and constituting between about 20 percent and 40 percent of the weight of the material.

13. The material of any of the above claims further comprising an adhesive disposed on a broad side of the paper opposite the fastener component.

14. The material of claim 13 wherein the adhesive is heat-activatable.

15. The material of claim 13 wherein the adhesive is pressure sensitive and covered by a removable protective layer.

16. The material of any of the above claims in roll form, with the fastening side directed inwardly.

17. The material of any of the above claims wherein the paper has an exposed surface suitable for printing or writing thereupon.

18. A method of securing an object over a broad surface of a home or building, the method comprising

permanently securing a primary touch fastening material to the broad surface, the material being in the form of a flexible laminate having a fastening side comprising a sheet-form fastener component, and an opposite side formed by a sheet of paper laminated to the fastener component to increase the dimensional stability of the fastener component;

providing a complementary fastener component on the object to be secured; and then

placing the object against the primary touch fastening material to releasably secure the object in place.

19. The method of claim 18 wherein the broad surface is a subfloor, and the object is a discrete piece of flooring to be secured to the subfloor.

20. The method of claim 19 wherein the sheet-form fastener component, and the complementary fastener component, are selected to provide a backlash between adjacent pieces of flooring, when one of the adjacent pieces is subjected to a separating load of 10 pounds, of less than about 0.020 inch, preferably less than about 0.015 inch.

21. The method of claim 20 wherein the backlash is at least 0.001 inch.

22. The method of any of claims 18 to 21 wherein the sheet-form fastener component is in a laterally stretched condition as laminated to the paper.

23. The method of any of claims 18 to 22 wherein the paper has a lateral stiffness at least as great as that of 85 pound Kraft paper.

24. The method of any of claims 18 to 23 wherein the sheet-form fastener component comprises an array of male fastener elements suitable for engaging a field of loops.

25. The method of claim 24 wherein the fastener elements have molded resin stems integral with a resin base layer extending across the fastener component and laminated to the paper.

26. The method of claim 25 wherein the base layer is laminated to the paper by resin of the base layer that encapsulates surface features of the paper.

27. The method of any of claims 18 to 23 wherein the sheet-form fastener component comprises a field of hook-engageable loops.

28. The method of claim 27 wherein the hook-engageable loops are defined by a non-woven web material.

29 The method of claim 28 wherein the web material includes a binder resin anchoring hook-engageable fibers or yarns and constituting between about 20 percent and 40 percent of the weight of the material.

30. The method of any of claims 18 to 29 further comprising an adhesive disposed on a broad side of the paper opposite the fastener component.

31. The method of any of claims 18 to 30 including unrolling the primary touch fastening material directly onto the broad surface.

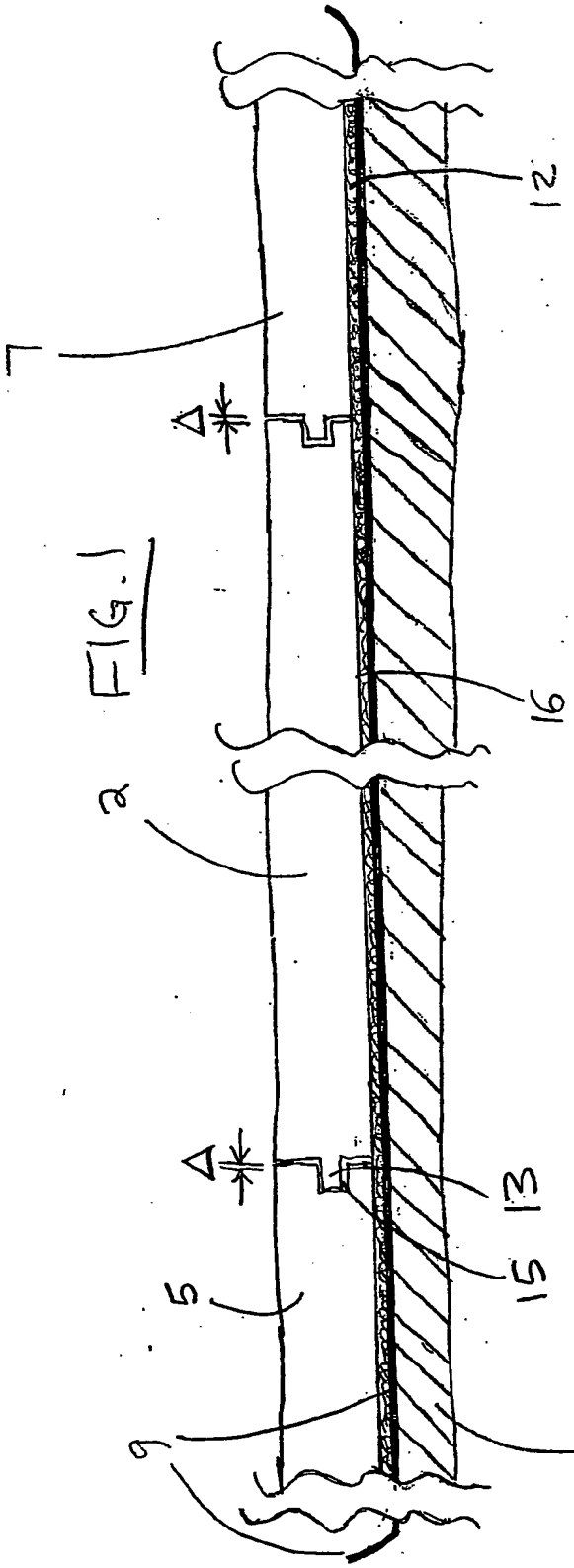


FIG. 1

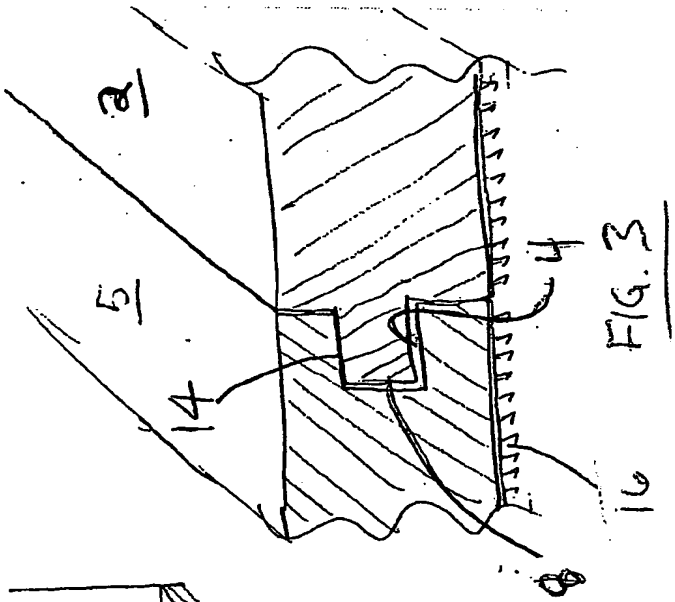


FIG. 3

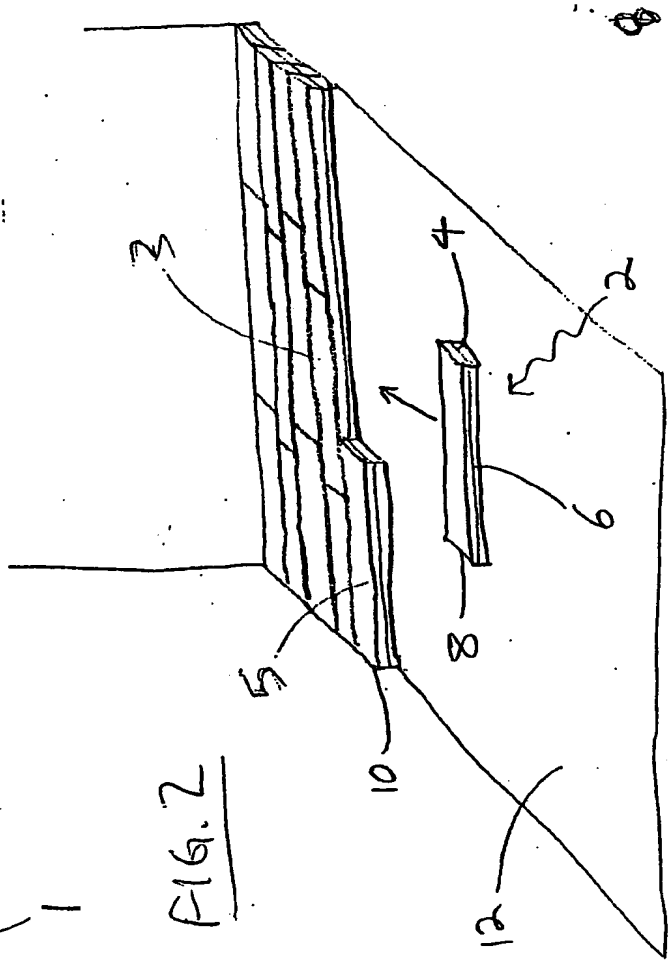


FIG. 2

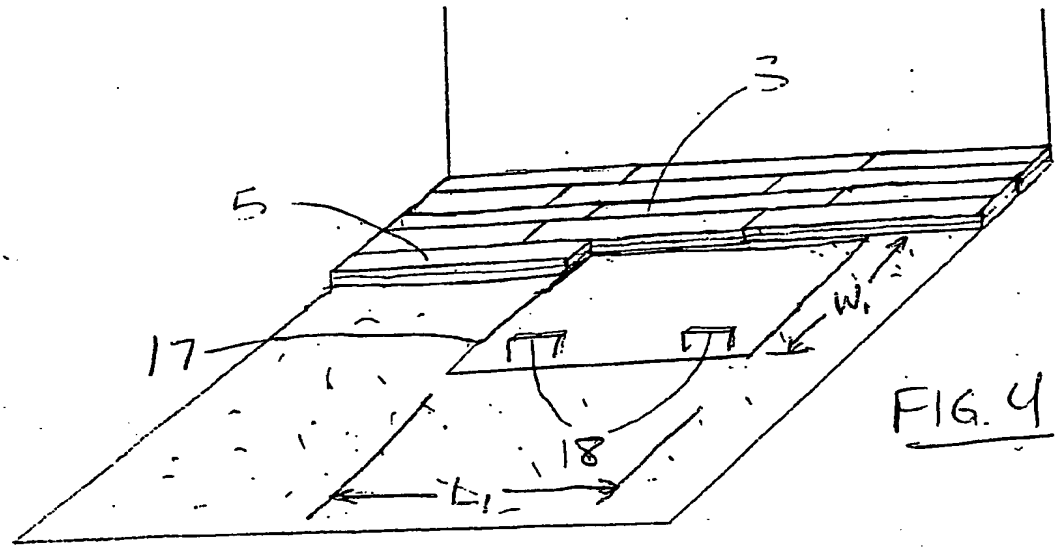


FIG. 4

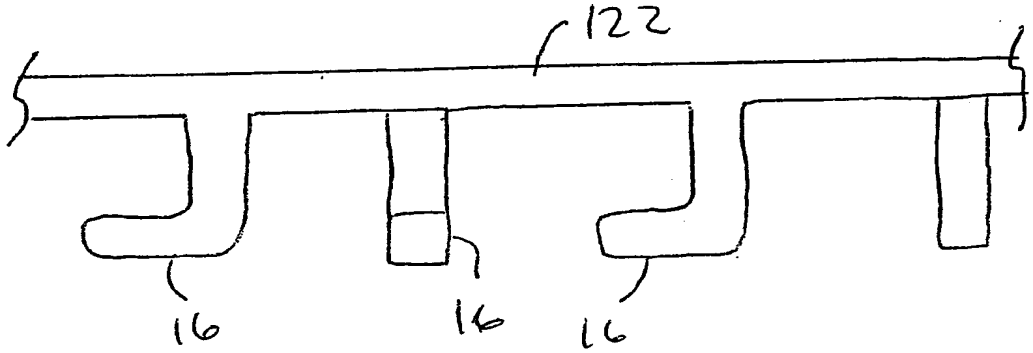


FIG. 5

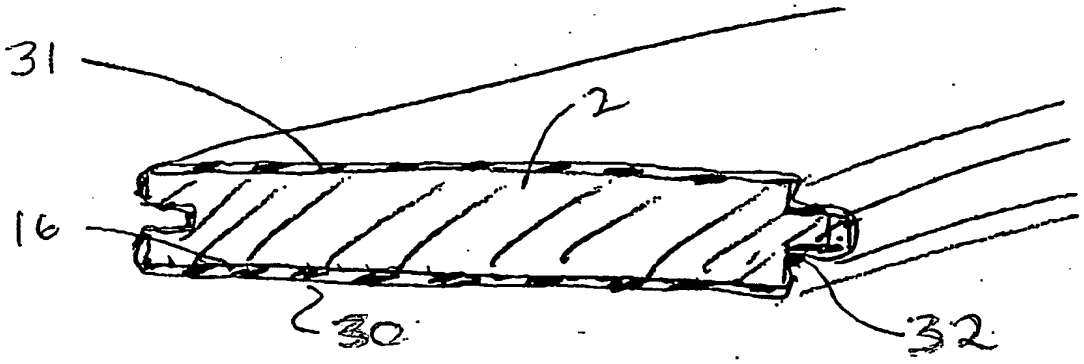


FIG. 6

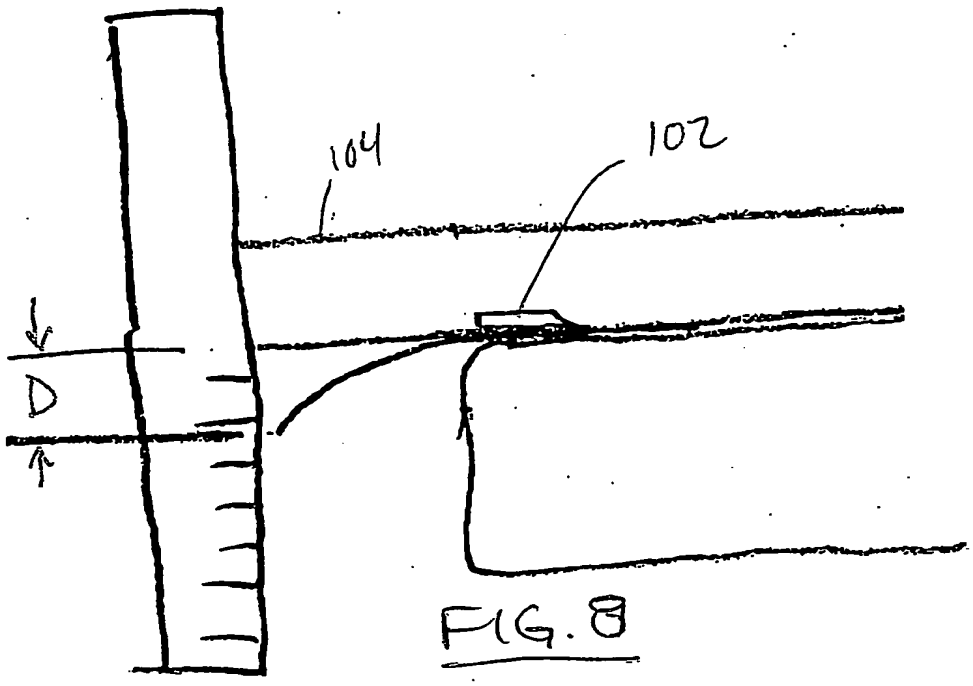


FIG. 8

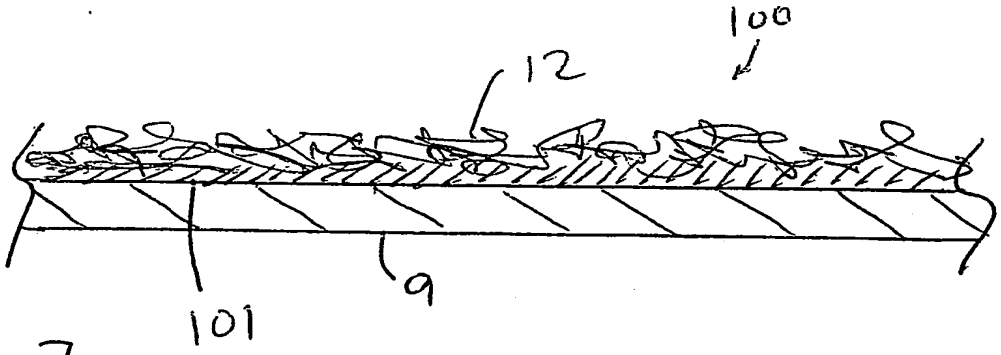


FIG. 7

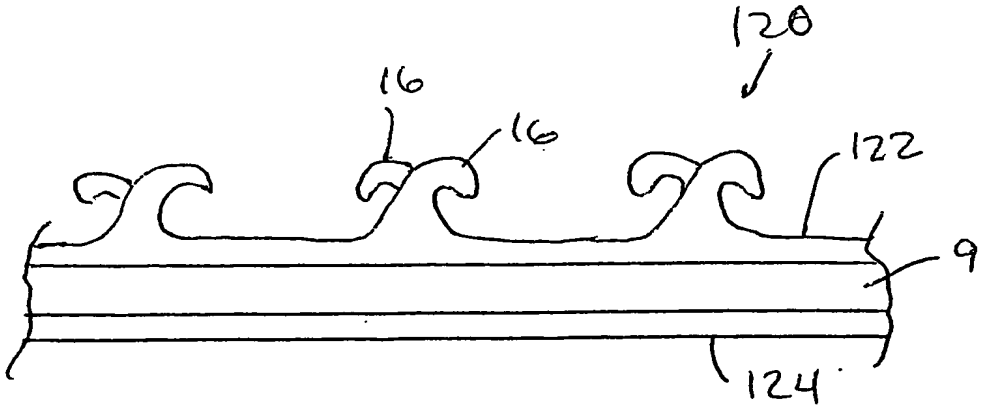


FIG. 11

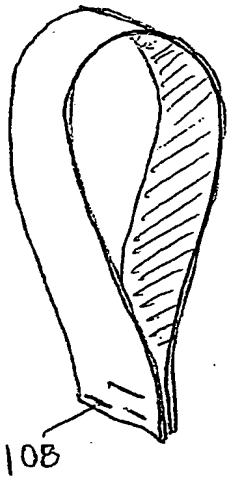


FIG. 9

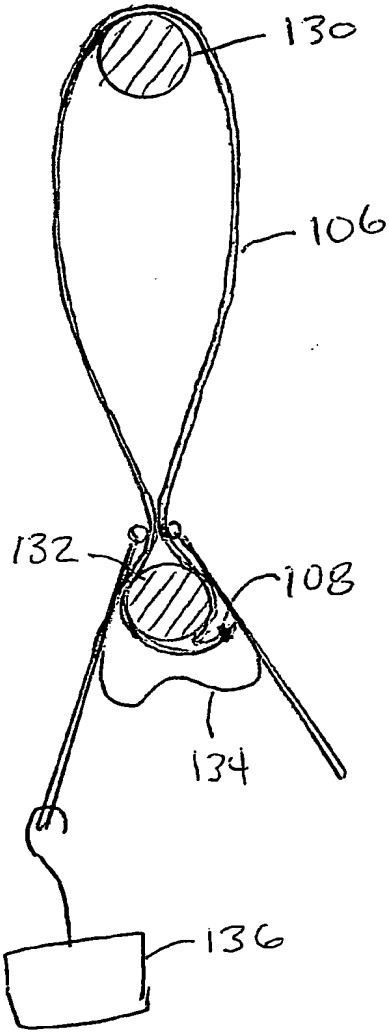


FIG. 10